

**DEPARTMENT OF TRANSPORTATION****DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch

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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:**Siegenthaler, Peter**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-023623**Date Inspected:** 10-May-2011**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1530**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** Pat Swain**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** SAS Tower**Summary of Items Observed:**

Caltrans Office of Structural Material (OSM) Quality Assurance Inspector (QAI) Joselito Lizardo was present at the Self Anchored Suspension (SAS) job site as requested to perform observations on the welding of components for the San Francisco Oakland Bay Bridge (SFOBB) Project.

At Tower Base Shear Plate to Diaphragm Plate, elevation 9 meters;

At Tower Base Shear Plate to Diaphragm Plate weld joint #32 (3 of 3), this QA Inspector randomly observed ABF personnel Xiao Jian Wan continuing to perform production 1G welding on the Partial Joint Penetration (PJP) of T-joint between the 60mm thick shear plate and 45mm thick diaphragm plate. The welder was using the dual shielded Flux Cored Arc Welding (FCAW-G)) with E71T-1M, 1/16" diameter wire electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-3160-1. This QA Inspector observed ABF personnel using Miller Proheat 35 Induction Heating System to preheat the plates being welded prior to welding. This QA Inspector observed QC Inspector William Sherwood using a Fluke infra red temperature gauge to verify the preheat temperature of more than 225°F. This QA Inspector performed a verification of the welding parameters and observed 240 amperes and 24.2 volts with a travel speed of 400 mm per minute with equivalent heat input of 0.87 Kj per mm. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-3160-1. During the shift, the welder has completed the PJP weld joint. After the completion of the weld joint, ABF personnel were noted covering the weld with heater blanket in preparation for the three hours holding of preheat temperature of more than 325°F as required. ABF personnel were using Miller Proheat 35 Induction Heating System to hold the preheat that was programmed to shut off after three hours.

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The same welder has moved to weld joint #31 (3 of 3) and started welding the root pass which he completed. ABF QC William Sherwood was noted performing Magnetic Particle Testing (MT) on the welded root pass. The MT was also completed and the welder continued welding the fill pass to cover pass until the end of the shift which the welder has completed. ABF personnel were noted covering the weld with heater blanket in preparation for the three hours holding of preheat temperature of more than 325°F as required. ABF personnel were using Miller Proheat 35 Induction Heating System to hold the preheat that was programmed to shut off after three hours.

At Tower Base Shear Plate to Diaphragm Plate weld joint #32 (2 of 3), this QA Inspector randomly observed ABF personnel Wai Kitlai continuing to perform production 1G welding on the Partial Joint Penetration (PJP) of T-joint between the 60mm thick shear plate and 45mm thick diaphragm plate. The welder was using the dual shielded Flux Cored Arc Welding (FCAW-G) with E71T-1M, 1/16" diameter wire electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-3160-1. This QA Inspector observed ABF personnel using Miller Proheat 35 Induction Heating System to preheat the plates being welded prior to welding. This QA Inspector observed QC Inspector Pat Swain using a Fluke infra red temperature gauge to verify the preheat temperature of more than 225°F. This QA Inspector performed a verification of the welding parameters and observed 270 amperes and 24.0 volts with a travel speed of 367 mm per minute with equivalent heat input of 1.06 KJ per mm. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-3160-1. During the shift, the welder has completed the PJP weld joint. After the completion of the weld joint, ABF personnel were noted covering the weld with heater blanket in preparation for the three hours holding of preheat temperature of more than 325°F as required. ABF personnel were using Miller Proheat 35 Induction Heating System to hold the preheat that was programmed to shut off after three hours.

The same welder has moved to weld joint #31 (2 of 3) and started welding the root pass which he completed. ABF QC Pat Swain was noted performing Magnetic Particle Testing (MT) on the welded root pass. The MT was also completed and the welder continued welding the fill pass to cover pass which he completed at the end of the shift. ABF personnel were noted covering the weld with heater blanket in preparation for the three hours holding of preheat temperature of more than 325°F as required. ABF personnel were using Miller Proheat 35 Induction Heating System to hold the preheat that was programmed to shut off after three hours.

At Tower Base Shear Plate to Diaphragm Plate weld joint #37 (1 of 3 and 3 of 3), this QA Inspector randomly observed ABF welder Jin Pei Wang perform weld butter on weld joint #37 due to excessive root gap. The welder was noted using Shielded Metal Arc Welding (SMAW) with 1/8" diameter E7018H4R electrode implementing Caltrans approved welding procedure ABF-WPS-D15-F1200A. Prior welding, the welder was noted preheating the plate to be buttered to more than 150°F using oxy-acetylene gas torch. During the shift, ABF QC Pat Swain was noted monitoring the parameters of the welder. Butter welding on weld joint #37 was completed at the end of the shift.

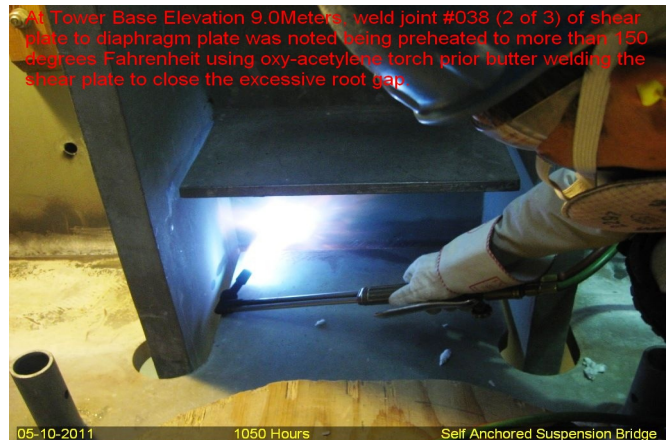
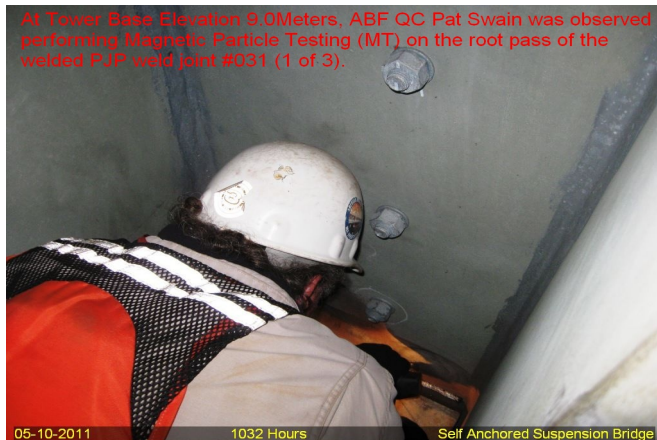
At Tower Base Shear Plate to Diaphragm Plate weld joint #38 (1 of 3), this QA Inspector randomly observed ABF welder Han Wen Yu perform weld butter on weld joint #38 due to excessive root gap. The welder was noted using Shielded Metal Arc Welding (SMAW) with 1/8" diameter E7018H4R electrode implementing Caltrans approved welding procedure ABF-WPS-D15-F1200A. Prior welding, the welder was noted preheating the plate to be buttered to more than 150°F using oxy-acetylene gas torch. During the shift, ABF QC Pat Swain was noted monitoring the parameters of the welder. Butter welding on weld joint #38 was completed at the end of the shift.

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## Summary of Conversations:

No significant conversation occurred today.

## Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact SMR Nina Choy 510-385-5910, who represents the Office of Structural Materials for your project.

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**Inspected By:** Lizardo, Joselito

Quality Assurance Inspector

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**Reviewed By:** Levell, Bill

QA Reviewer